

III. PO – Pre-Order / Order

A. PO-1A and B – Pre-Order/Order Response Times for GUI and EDI

1. Introduction and Background

PO-1 measures response time, *i.e.*, the interval between query and response, for seven different pre-order/order transaction types performed by the CLECs. PO-1A measures response time for transactions submitted via IMA-GUI; PO-1B measures response time for those transactions that are submitted via EDI.

The measure does not report actual CLEC results, but rather simulations. Qwest developed scripts for each type of transaction (*e.g.*, appointment scheduling) with steps (*e.g.*, select “next” from a screen, choose a screen) designed to reflect the activities performed by the CLECs. Then Qwest’s IMA Response Time Measurement (*IRTM*) system performs simulations, and the performance results are calculated from the simulations. Qwest runs these simulations approximately every fifteen minutes throughout the day from about 6:00 a.m. to 10:00 p.m.

Qwest runs a certain number of observations each month, and each is associated with a specific product. Each product, in turn, involves some of the seven transactions, but not necessarily all of them. Thus, the total number of observations in a month will vary among the different types of transactions.

Each transaction involves one or more screens that the simulation goes through. For example, the TN Reservation (telephone number reservation) transaction reports results in three categories: request, response, and accept. The monthly performance report shows a result (in this case, an elapsed time) in each of these categories. The report then adds up the times in the three categories and reports a total time for the transaction, called “aggregate” in the report. Except for the Loop Qualification transaction type, only the aggregate time has a standard; its components do not.

There is no product reporting for this measure. The only exclusions for PO-1A and B are for rejected requests/errors and timed-out transactions. The standards for PO-1A and B depend on the transaction type and are measured in seconds.

The formula for PO-1A and B in the PID should be read as referring to the simulations run by Qwest. It is:

$$\frac{[(\text{Query response date and time}) - (\text{Query submission date and time})]}{(\text{Number of queries submitted in the reporting period})}$$

2. Overall Summary

There have been two observations and two exceptions issued regarding this measure. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. That fact-finding resulted in the two observations and two exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty also reviewed the PO-1A and -1B performance measurement results for several months, including the months of December 2000 and January 2001, to ensure that all the changes required by the exceptions and observations had been made, and that the results were consistent with the IRTM Pre-Order/Order Response Time report.

Because the performance measure results for PO-1 are obtained using simulations, Liberty investigated the extent to which Qwest mirrored actual CLEC circumstances. Each simulation involves one of the fourteen Qwest states, and Liberty requested information showing that the state was irrelevant to system response time. This is a potential issue because, depending on the state, different hosts are accessed during some transaction types. The results showed that state was not a factor.

Liberty also requested information showing that product type was irrelevant to system response time. In the case of each transaction type except Facility Check, there was minimal response time variation among the products. Liberty learned that the ROC TAG had agreed that only one product, POTS, would be used in determining Facility Check response time, so this is not an issue.

Because three transaction types (*e.g.*, Address Validation) allow the user an option as to how to proceed (*e.g.*, query by Telephone Number or by Street Address), Liberty requested information about which options were used in the simulations, and why. In each case, Qwest had reasonable explanations for the options it chose.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-1A and B to meet the audit-release requirements as of March 28, 2001.

b. Exceptions

There were two exceptions regarding this performance measure. In Exception 1001 Liberty noted that, for a given transaction, it was possible that the number of observations reported in one category (*e.g.*, request) may be greater than those reported in a subsequent category (*e.g.*, response). The problem occurred when a transaction would begin before 10:00 p.m. but end after 10:00 p.m. In that case, the part of the transaction (*e.g.*, response) that occurred after 10:00 p.m. would not be included in the report. Qwest fixed the problem by modifying the IRTM business rules to expand the reporting period to 5:50AM through 10:10PM.

In Exception 1004, Liberty found that Qwest was reporting results for Facility Availability and Customer Service Records that included all products, not just non-complex services as required

by the PID. Qwest changed its procedures so that only non-complex product observations are included for these two transaction types. Qwest also increased the number of POTS accounts in the IRTM action files to ensure the reported results would continue to be statistically valid.

c. Observations

There have been two observations regarding this performance measure. Observation 1010 stated that Qwest did not include transactions that time-out in the PO-1 measurements. The PID, as it existed at the time this observation was developed, did not specifically state that timed-out transactions were being excluded from the results. Qwest responded by offering to create a new sub-measure, PO-1C, which would capture timed-out transactions; the ROC TAG approved PO-1C.

Observation 1017 found that Qwest's process weighted the results of each simulation equally. Because Qwest's simulation results differ by time-of-day, Liberty felt that an equal weighting might not be appropriate. Liberty requested information to assess this issue and the response showed that many more CLEC transactions occur at some times of the day than at others. Qwest agreed that the results would more accurately reflect actual CLEC experience if they were not weighted equally. Qwest changed its process so that it calculates the percent of all CLEC GUI transactions that occur during each 15-minute period of the day. The same thing is done for EDI transactions. Qwest then weights its simulation results using those percentages, rather than weighting all of the simulations equally as was done in the past.

d. Conclusions

This performance measure reports results that are a reasonable simulation of the actual results experienced by CLECs. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has a few minor comments regarding reporting of results for this measure. Qwest's reported results for the Loop Qualification transaction type only include the ADSL product. For completeness, the PID document should probably make reference to this fact. This could be done in a footnote similar to the footnote for Facility Availability and Customer Service Records that states these transaction types only include non-complex products.

Footnote 4 to the ROC 271 Working PID Version 2.2 states that the benchmark for Loop Qualification only applies to response time, although request time and total time are also reported. For IMA-GUI, the March 5, 2001 Qwest performance results report shows the benchmark in the aggregate section, rather than in the response time section. Thus, either the footnote in the ROC 271 Working PID Version 2.2 or the placement of the benchmark line in the IMA section of the performance results report should be changed.

For EDI, the performance results report only shows one time for Loop Qualification, and that is an aggregated request/response time. The March 5, 2001 performance report does not show any benchmark at all for Loop Qualification for EDI. A benchmark should be shown, but it will have to apply to the total time, because that is the only time that is reported.

B. PO-1C and D – Pre-Order/Order Timeouts and Rejects for GUI and EDI

1. Introduction and Background

PO-1C and PO-1D are relatively new measures that were discussed during the January 2001 PID Workshop. PO-1C measures the percentage of queries that time out before receiving a response. A timeout transaction is defined by Qwest to be a transaction whose response time duration is 200 seconds or more. All of the queries that are included in PO-1A and PO-1B are measured in PO-1C.

PO-1D measures the average response time for a sample of rejected queries. During the PID Workshop, Qwest agreed to report rejected query response time if that reporting was done using Qwest's already-existing process. This is stated explicitly in Note 5 of the PID definition. Qwest has developed a set of observations that are designed to be rejected by the system. The three error types used are: missing required field, invalid format, and illogical data combination. Fewer types of errors are being reported for EDI than for GUI. For example, because EDI will accept a four-digit zip code, the Address Validation Invalid Format query will complete successfully in EDI (while it will be rejected in GUI). As another example, the Review CSR Missing Required Field queries will fail in the EDI translator and, as the Qwest systems currently operate, a rejection interval cannot be determined. The result is that 14 different error transactions are measured for EDI, while 21 are measured for GUI. Qwest runs its set of error observations during the same hours of the day as it runs its other IRTM simulations. The reported results are not weighted by time of day (as are the results for PO-1A and PO-1B).

These sub-measures report results according to the gateway interface used. PO-1C-1 and PO-1D-1 measure results for IMA-GUI, and PO-1C-2 and PO-1D-2 measure results for EDI.

There is no product reporting for these sub-measures. The only exclusion for PO-1C is rejected requests and errors. The only exclusion for PO-1D is timed-out transactions. The standard for PO-1C-1 and PO-1C-2 is 0.5 percent. PO-1D-1 and PO-1D-2 are diagnostic sub-measures.

The formula for PO-1C is:

(Number of IRTM queries measured by PO-1A and PO-1B that timeout before receiving response/Number of IRTM queries transmitted in reporting period) x 100

The formula for PO-1D is:

[(Rejected query response date and time) – (Query submission date and time)]/(Number of rejected query transactions simulated by IRTM)

2. Overall Summary

There have been no observations or exceptions issued regarding these sub-measures. The performance sub-measures are ready for release.

3. Analysis

Liberty conducted an interview and issued several data requests to learn about the PO-1C and PO-1D performance measure processes. Liberty reviewed the *IRTM Functional Specifications for Wholesale Rejected Query* and the *IRTM Functional Specifications for Wholesale Timeout* documents to ensure that they were consistent with the PID.

Liberty also reviewed the PO-1C and PO-1D performance measurement results for the months of March and April 2001. Liberty assessed the PO-1C results to ensure that they were consistent with the Pre-Order Time-Out Reports for those periods and that all of the PO-1A and PO-1B queries were properly included in the PO-1C results. Liberty reviewed the PO-1D results for those two months to ensure that they were consistent with the Rejected Query Response Time Report. Liberty also checked to ensure that all seven transaction types (e.g., appointment scheduling, address validation), as well as all of the relevant error types, were included in Qwest's sample for GIU and EDI.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-1C and PO-1D to meet the audit-release requirements as of June 7, 2001.

b. Exceptions

There were no exceptions regarding these performance sub-measures.

c. Observations

There were no observations regarding these performance sub-measures.

d. Conclusions

PO-1C accurately reports the percent of PO-1A and PO-1B queries that timeout before receiving a response. PO-1D accurately reports the average response time for the sample of rejected queries chosen by Qwest.

5. Recommendations

Liberty has no recommendations regarding these sub-measures.

C. PO-2 – Electronic Flow-Through

1. Introduction and Background

PO-2 measures the extent to which Qwest processes LSRs completely electronically. PO-2A measures the percentage of electronic LSRs that flow from the gateway interface to the service

order processor (SOP) with no human intervention. PO-2B measures the percentage of flow-through-eligible LSRs that flow from the gateway interface to the SOP with no human intervention. (The list of LSR types eligible for flow-through is contained in a matrix titled *LSRs Eligible for Flow Through*.) In each case, results are reported separately for LSRs received via GUI (PO-2A-1 and PO-2B-1) and for those received via EDI (PO-2A-2 and PO-2B-2). The unit of measure for PO-2A and PO-2B is percent.

The formula for PO-2A is:

[(Number of electronic LSRs that pass from the gateway interface to the SOP without human intervention)/(Total number of electronic LSRs that pass through the gateway interface)] x 100

The formula for PO-2B is:

[(Number of flow-through-eligible electronic LSRs that actually pass from the gateway interface to the SOP without human intervention)/(Number of flow-through-eligible electronic LSRs received through the gateway interface)] x 100

Both PO-2A and PO-2B are reported separately for resale, unbundled loops (with or without LNP), LNP, and UNE-P (POTS).

The exclusions applying to PO-2 are:

- Rejected LSRs, non-electronic LSRs (e.g., via fax or courier)
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID
- Duplicate LSR numbers (this exclusion to be eliminated upon implementation of IMA capability to disallow duplicate LSR #s)
- Invalid start/stop dates/times.

2. Overall Summary

There have been one exception and one observation issued regarding PO-2. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-2 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

As noted above, the list of LSR types eligible for flow-through is contained in a matrix titled *LSRs Eligible for Flow Through*. A footnote to that matrix states:

The exceptions listed reflect Qwest's current Flow Through exceptions. It is Qwest's intent to report Flow Through performance (PO-2) based on these exceptions at a later date. Qwest is currently unable to report using this level of detailed exceptions. This will result in under-reporting Flow Through performance until additional system development can be completed.

When an LSR is submitted via either GUI or EDI, the Business Process Layer (BPL) of IMA performs edits and validation checks on it to determine its disposition. On the basis of those checks, BPL sets an IAER indicator that identifies whether the LSR is eligible to flow through. An IAER indicator of "M" (manual) keeps the LSR from flowing through to the Flow-Through System (FTS), which is the system that creates service orders from the LSR.

For each period, two files are used by Wholesale Regulatory Reporting to calculate the PO-2 results. The FTS file consists of all LSRs that were sent to FTS. The Undetermined File contains those LSRs that should have flowed through to FTS (and thus been included in the FTS file) but that did not flow through because IMA had a communications problem with Qwest back end systems. Liberty reviewed the requirements and the pseudo code for the Undetermined File and concluded that they were appropriate. Taken together, the records in these two files are the LSRs that are considered flow-through-eligible for the period.

Liberty wanted to ensure that all flow-through-eligible LSRs could be found in either the FTS file or the Undetermined File so that they would be included in the PO-2 results calculations. Liberty requested that Qwest prepare a report showing the condition of every LSR that had an IAER indicator of "M" in the month of December. Liberty then reviewed the conditions included on this Ad Hoc IAER report. Some of the conditions (e.g., CFA Validation) resulted in an LSR being included in the Undetermined File (so that it would be included in flow-through-eligible calculations). The other conditions (e.g., Supplementals) were valid reasons for an LSR to not be flow-through-eligible. Accordingly, Liberty concluded that all flow-through-eligible LSRs are being included in the PO-2B calculation. (The opposite inclusion statement is known to be untrue. Not every LSR currently being treated as flow-through-eligible actually is. That is acknowledged in the footnote to Qwest's matrix quoted above, which states Qwest cannot currently make all required exclusions. Qwest is continually making refinements to its processes to exclude more LSR types that are not flow-through-eligible.)

During an interview with Qwest's personnel, Liberty inquired as to whether there could be a timing problem if an LSR is received so late in one month that it does not get into the FTS or undetermined file for that month. Liberty was informed that such situations did occur, although rarely, and that in those cases an LSR could be double-counted in PO-2A. Qwest investigated the problem and reported that it revised its programming to correct for it.

Liberty selected numerous, different types of LSRs for the month of December 2000 and checked how the program that calculates PO-2 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

Liberty recalculated the performance measure results for PO-2 for Idaho for the months of January and February 2001. Liberty obtained the same results as those reported by Qwest for PO-2 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-2 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

Exception 1039 found that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-2A. (Supplemental LSRs are not flow-through-eligible, and thus this exception does not apply to PO-2B.) After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (e.g., pending flow) that applied to the original LSR. This has several implications for RRS processing. First, RRS' performance measurement program may not correctly account for the supplemental LSR because it may no longer have an appropriate earliest condition/status, e.g., its earliest condition/status in CRM may have been appended from the LSR being supplemented. Second, even if the LSR is accounted for in the performance measurement calculations, the way the LSR is treated may be inappropriate because the date and time used in those calculations may be taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest modified its program code to resolve this problem. Liberty then reviewed the modified code and, in addition, selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program did treat the supplemental LSRs correctly.

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-2 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate PO-2 results. Qwest revised the PID description to include these exclusion types, and they are now listed in the PID. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-2 accurately reports the percentage of electronic LSRs that flow through to the SOPs without human intervention. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

There continue to be exclusions, from the matrix of flow-through-eligible LSRs, which Qwest currently cannot make for PO-2B. As Qwest develops the capability to make additional exclusions, Liberty recommends that the new or modified processes be audited for completeness and accuracy.

D. PO-3 – LSR Rejection Notice Interval

1. Introduction and Background

PO-3 measures the interval between Qwest's receipt of an LSR and its transmittal of a rejection notice. It is reported separately for LSRs received via GUI (PO-3A), EDI (PO-3B), and facsimile (PO-3C). Only LSRs rejected in the reporting period are included.

The ROC TAG approved a change to PO-3 to take auto-rejected LSRs into account. PO-3A-1 and PO-3B-1 measure performance for LSRs that were rejected manually, and these measures are reported at the statewide level. PO-3A-2 and PO-3B-2 measure performance for LSRs that were auto-rejected, and these measures are reported at the region-wide level only. PO-3C was unchanged. PO-3A-2 and PO-3B-2 are measured in minutes and seconds, while all other PO-3 sub-measures are measured in hours and minutes. For LSRs received electronically the standard is to be determined. For LSRs received via facsimile the standard is less than or equal to 24 work week clock hours.

The formula for PO-3 is:

$$\frac{[(\text{Date and time of rejection notice transmittal}) - (\text{Date and time of LSR receipt})]}{(\text{Total number of LSR rejection notifications})}$$

The following types of LSRs are excluded:

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID0
- Duplicate LSRs (to eventually be eliminated)
- Invalid start or stop dates/times.

2. Overall Summary

There have been two exceptions and one observation issued regarding this measure. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-3 results are prepared using an automated

process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous different types of LSRs for the month of December 2000 and checked how the program that calculates PO-3 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

Liberty recalculated the performance measure results for PO-3 for Idaho for the months of January and February 2001. During recalculation, Liberty identified a discrepancy of 140 seconds in the PO-3C numerator. This was due to a problem in transferring the SAS interval data (in an HH:MM:SS format) into the corresponding Excel format. This difference has been accounted for in the following records:

LSR No.	SAS Interval	Excel Interval	Difference
10235588	1855:14:47	1855:14:00	47
10923791	340:52:04	340:52:00	4
10923669	358:50:48	358:50:00	48
11047107	165:35:06	165:35:00	6
11127616	272:20:35	272:20:00	35

The sum of the differences amounts to 140 seconds. Accordingly, Liberty obtained the same results as those reported by Qwest for PO-3 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-3 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

Exception 1039 found that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-3. After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (e.g., pending flow) that applied to the original LSR. This has several implications for RRS processing. First, RRS' performance measurement program may not correctly account for the supplemental LSR because it may no longer have an appropriate earliest condition/status, e.g., its earliest condition/status in CRM may have been appended from the LSR being supplemented. Second, even if the LSR is accounted for in the performance measurement calculations, the way the LSR is treated may be inappropriate because the date/time used in those calculations may be taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest

modified its program code to resolve this problem. Liberty then reviewed the modified code and, in addition, selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program did treat the supplemental LSRs correctly.

Qwest informed Liberty that not all rejected LSRs were being included in the calculation of PO-3 performance measure results. When a CLEC submits an LSR, it can be automatically rejected by the system with no manual intervention. In that case, the rejected LSR is never entered into the CRM system. As a result, such LSRs had not been included in either the numerator or denominator of PO-3 (whose results have historically been based solely on CRM data). The only rejected LSRs that were included in the measure have been those that are manually rejected. This problem only involved PO-3A and B. PO-3C measures rejection of LSRs that were submitted by facsimile, and all rejections of those LSRs are done manually. Liberty's Exception 1043 addressed this problem.

A log is kept of the LSRs that are automatically rejected by the system, and Qwest solved the problem by using that log to include auto-rejected LSRs in the measure. However, the log is only available at the regional level, and not by state. The ROC TAG approved changes to the PO-3 PID that addressed this issue. Liberty reviewed the log of auto-rejected LSRs, the file created from it and transmitted to Wholesale Regulatory Reporting (*WRR*) for input into the performance measure calculation, and the changes to the SAS code made by WRR to include the auto-rejected LSRs. Liberty found no problems with any of these documents.

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-3 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate PO-3 results. Qwest revised the PID description to include these exclusion types. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-3 accurately reports the LSR rejection notice interval. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no specific recommendations regarding this measure.

E. PO-4 – LSRs Rejected

1. Introduction and Background

PO-4 measures the extent to which LSRs are rejected as a percentage of all LSRs that are rejected or that receive Firm Order Confirmations (*FOCs*) during the reporting period. It is reported separately for LSRs received via IMA-GUI (PO-4A), EDI (PO-4B), and facsimile (PO-4C). This is a diagnostic measure.

The ROC TAG approved a change to PO-4 to take auto-rejected LSRs into account. That change also provided additional disaggregation of PO-4 performance results. PO-4A-1 and PO-4B-1 measure results for LSRs rejected manually, while PO-4A-2 and PO-4B-2 measure results for LSRs that are auto rejected. PO-4A and PO-4B are now reported on a region-wide level, and PO-4C is reported at a statewide level.

The formula for all sub-measures of PO-4 is:

[(Total number of LSRs rejected via the specified method in the reporting period)/(Total of all LSRs that are received via the specified interface that were rejected or FOC'd during the reporting period)] x 100

The following types of LSRs are excluded:

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID
- Duplicate LSRs (to eventually be eliminated)
- Invalid start/stop dates/times.

2. Overall Summary

There have been three exceptions and one observation issued regarding PO-4. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-4 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous, different types of LSRs for the month of December 2000 and checked how the program that calculates PO-4 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed

below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

Liberty also recalculated the performance measure results for PO-4 for the month of March 2001. Liberty obtained the same results as those reported by Qwest for PO-4 for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-4 to meet the audit-release requirements as of May 29, 2001.

b. Exceptions

During an interview with Qwest personnel, Liberty learned that Qwest was including in the denominator of PO-4 only those LSRs that were rejected during the month or that received Firm Order Confirmations (FOCs) during the month. The description section of the then-current PID document stated, in part:

Includes all LSRs that are submitted through the specified interface during the reporting period.

Accordingly, Liberty issued Exception 1023, which noted that Qwest was not including all LSRs required by the PID. Qwest proposed, and the ROC TAG accepted, changes to the PID definition so that the revised PID states:

Includes all LSRs submitted through the specified interface that are rejected or FOC'd during the reporting period.

This change made the PID document consistent with Qwest's process.

Exception 1039 reported that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-4. After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (e.g., pending flow) that applied to the original LSR. This had several implications for RRS processing. First, RRS' performance measurement program did not always correctly account for the supplemental LSR because it may no longer have had an appropriate earliest condition/status, e.g., its earliest condition/status in CRM (for example, pending flow) may have been appended from the LSR being supplemented. Second, even if the LSR was accounted for in the performance measurement calculations, the way the LSR was treated may have been inappropriate because the date/time used in those calculations may have been taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest modified its program code to resolve this problem. Liberty then reviewed the modified code and, in addition, selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program did treat the supplemental LSRs correctly.

Subsequently, Qwest informed Liberty that not all rejected LSRs were being included in the calculation of PO-4 performance measure results. When a CLEC submits an LSR, it can be automatically rejected by the system with no manual intervention. In that case, the rejected LSR

is never entered into the CRM system. As a result, such LSRs had not been included in either the numerator or denominator of PO-4 (whose results have historically been based solely on CRM data). The only rejected LSRs that were included in the measure were those that were manually rejected. This problem only involved PO-4A and B. PO-4C measures rejection of LSRs that were submitted by facsimile, and all rejections of those LSRs are done manually. Liberty's Exception 1043 addressed this problem.

A log is kept of the LSRs that are automatically rejected by the system, and Qwest solved the problem by using that log to include auto-rejected LSRs in the measure. However, the log is only available at the regional level, and not by state. The ROC TAG approved changes to the PO-4 PID that addressed this issue by creating sub-measures for both PO-4A and PO-4B. PO-4A-1 and PO-4B-1 report results for manually rejected LSRs, and PO-4A-2 and PO-4B-2 report results for auto rejected LSRs. Liberty reviewed the log of auto-rejected LSRs, the file created from it and transmitted to WRR for input into the performance measure calculation, and the changes to the SAS code made by WRR to include the auto-rejected LSRs. Liberty found no problems with any of these documents.

When applied to the new sub-measures, Qwest's interpretation of the PO-4 formula (as it was defined at the time) resulted in PO-4A-2 and PO-4B-2 always having a value of 100 percent. The ROC TAG then approved additional changes to the PO-4 PID definition that resulted in the current formula, which is shown in Section A above, and which does not always yield a value of 100 percent for the PO-4A-2 and PO-4B-2 sub-measures. Liberty reviewed Qwest's changes to the Setflags program and the Rules program to ensure that they were properly compiling PO-4 results according to the new formula and definitions. Liberty found that the revisions were appropriate. (The main SAS program used to obtain PO-4 results did not require any changes to accommodate this revision to PO-4.)

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-4 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate most of the PO-4 results. Qwest revised the PID description to include these exclusion types, and they are now listed in the PID. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-4 accurately reports the percentage of LSRs that are rejected. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

F. PO-5 – Firm Order Confirmations On Time

1. Introduction and Background

PO-5 measures the percentage of Firm Order Confirmations (*FOCs*) that are provided within specified intervals by Qwest in response to LSRs/ASRs submitted by CLECs. PO-5 is reported separately for fully electronic LSRs (PO-5A) and for electronic/manual LSRs (PO-5B). Within each of those categories, reporting is separate for LSRs received via GUI and for those received via EDI. PO-5 is also reported for LSRs received via facsimile (PO-5C) and for ASRs requesting LIS trunks (PO-5D). Qwest's performance in responding to LSRs is reported separately for resale services and UNE-P (POTS), unbundled loops (all types), and LNP. All of the standards for the PO-5 sub-measures are time intervals. The time interval standards vary depending on the ordering interface, product, and number of lines.

The formula for PO-5A for fully electronic LSRs is:

[Count of LSRs for which the original FOC notification date/time – LSR received date/time is within 20 minutes]/(Total number of original FOC notifications transmitted for the service category in the reporting period)

The formula for PO-5B, C, and D is:

[Count of LSRs/ASRs for which the original FOC notification date/time – Application date/time is within the intervals specified for the service category involved]/Total number of original FOC notifications transmitted for the service category in the reporting period)

The following exclusions are made:

- LSRs/ASRs involving ICB (individual case basis) handling, on the basis of quantities of lines as specified in the standards section, or service/request types deemed to be projects.
- Hours on weekends and holidays (except for fully electronic LSRs, which only excludes hours outside the scheduled up time).
- LSRs with CLEC-requested FOC arrangements different from standard.
- Records with invalid product codes.
- Records missing data essential to the calculation of the measurement per the PID.
- Duplicate LSRs (to eventually be eliminated).
- Invalid start/stop dates/times.

Additionally, ASRs with invalid application or confirmation dates are excluded.

2. Overall Summary

There have been one exception and one observation issued regarding PO-5. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-5 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exception discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

The definition section of the PID defines application date and time. It notes that the LSR or ASR must be complete and accurate, and that the application date/time for ASRs received after 3:00 p.m. MT is considered the start of the next business day. The file used by Wholesale Regulatory Reporting in preparing PO-5D results has an application date, but no time. Liberty requested information to confirm that the application dates in the file were already "rolled over" to the next business day when required by the PID. Liberty reviewed the methods and procedures employed by the Wholesale Service Centers regarding application date and time and confirmed that they correctly interpret the requirements of the PID.

PO-5D is measured in business days. Qwest employs a B-day program that is its interpretation of how to measure the interval, in business days, between two events (referred to in this discussion as a beginning event and an ending event). If the beginning event (or, respectively, the ending event) occurs on a weekend or holiday, then the day of the beginning event (or, respectively, the day of the ending event) is included in the interval calculation, whether that day is a business day. Days that occur between the beginning event and the ending event are included in the interval only if they are business days.

Liberty selected numerous different types of LSRs for the month of December 2000 and checked how the program that calculates PO-5 results had handled them. All of the LSRs had been treated properly except one supplemental LSR. This resulted in Exception 1039 discussed below. Subsequent data tracking, using different types of supplemental LSRs, showed that the problem had been corrected.

In addition, Liberty selected different types of ASRs and checked how the program that calculates PO-5D results had handled them. All of the ASRs had been treated properly.

Liberty also recalculated the performance measure results for PO-5 for Idaho for the months of January and February 2001. Liberty obtained the same results as those reported by Qwest for PO-5 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-5 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

Exception 1039 reported that supplemental LSRs were not always being handled properly in many of the PO result calculations, including PO-5. After analyzing the problem, Qwest informed Liberty that, when a supplemental LSR is received, CRM appends to that supplemental LSR all of the conditions (*e.g.*, pending flow) that applied to the original LSR. This has several implications for RRS processing. First, RRS' performance measurement program may not correctly account for the supplemental LSR because it may no longer have an appropriate earliest condition/status, *e.g.*, its earliest condition/status in CRM may have been appended from the LSR being supplemented. Second, even if the LSR is accounted for in the performance measurement calculations, the way the LSR is treated may be inappropriate because the date and time used in those calculations may be taken from a condition appended to the supplemental LSR and thus not relevant to it (from the perspective of RRS' performance reporting). Qwest modified its program code to resolve this problem. Liberty then reviewed the modified code and selected supplemental LSRs of various types and tracked them to determine if they were now being accounted for properly. Liberty determined that the revised program treated the supplemental LSRs correctly.

c. Observations

Observation 1005 found that Qwest was making numerous exclusions not shown in the PID document for PO-5 (and other measures as well). Qwest's reply discussed common exclusions that it makes to various data sets, including the source data used to generate PO-5 results. Qwest revised the PID description to include these exclusion types. Furthermore, Qwest provided information showing what percentage of the data set was represented by each exclusion type. For the CRM data set used to generate many of the PO measures, only two exclusion types represented more than a very small fraction of the total. These were exclusions of cancelled transactions and of transactions with invalid product codes. Liberty believes that exclusions are now adequately documented.

d. Conclusions

PO-5 accurately reports the percentage of FOCs that are provided within specified intervals. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

G. PO-6 – Work Completion Notification Timeliness

1. Introduction and Background

PO-6 reports on the timeliness with which Qwest provides electronic notification at an LSR-level to CLECs that provisioning on all service orders associated with the LSR is complete in the service order processor. The measure reports an interval, calculated from the time the last service

order comprising the LSR is posted as complete in the service order processor to the time a completion notice is made available (for IMA-GUI) or transmitted (for EDI) to the CLEC. PO-6 provides an average value for this interval, and is measured in hours and minutes.

PO-6 includes all orders completed in the service order processor that generate completion notifications in the reporting period. PO-6A reports on notices made available via IMA-GUI, where "made available" means that Qwest has stored a status update in the IMA Status Updates database. PO-6B reports on notices transmitted via EDI, where "transmitted" currently means that Qwest has completed processing in IMA immediately prior to transmitting the notice. Qwest is developing the capability to capture the actual transmission date and time from EDI. When that capability is developed, Qwest will use that as the transmission time. The standard for PO-6 is to be determined.

The formula for PO-6A is:

((Date and time completion notification made available to CLEC) – (Date and time the last of the service orders that comprise the CLEC LSR is completed in the service order processor))/(Number of completion notifications made available in reporting period)

The formula for PO-6B is:

((Date and time completion notification transmitted to CLEC) – (Date and time the last of the service orders that comprise the CLEC LSR is completed in the service order processor))/(Number of completion notifications transmitted in reporting period)

PO-6 has the following exclusions:

- Records with invalid completion dates
- LSRs submitted manually (e.g., via facsimile)
- Services that are not billed through CRIS
- ASRs submitted via EXACT.

2. Overall Summary

As discussed below, there have been three exceptions and one observation issued regarding this measure. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-6 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observation and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous types of LSRs (and their associated service orders) for the month of July 2001 and checked how the program that calculates PO-6A and PO-6B results had handled them. All of the LSRs and service orders had been treated properly.

Liberty also recalculated the performance measure results for PO-6A and PO-6B for the state of Idaho for the month of June 2001. Liberty obtained the same results as those reported by Qwest for PO-6A and PO-6B for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-6 to meet the audit-release requirements as of September 25, 2001.

b. Exceptions

Exception 1024 found that Qwest was including in the numerator of the interim PO-6 measure (*i.e.*, the measure that was in effect prior to implementation of the permanent PO-6A and PO-6B measures) all those orders for which the work completion notification was transmitted within 24 hours of when the work was posted as completed. According to the ROC 271 Working PID in effect at the time (Version 2.0), the numerator should have included all orders for which notifications were transmitted by noon of the next business day. Qwest agreed to revise its programming to conform with the PID requirements.

Exception 1027 found that Qwest was including in the denominator of the interim PO-6 measure only those orders that received a work completion notification during the period. According to the then-existing ROC 271 Working PID (Version 2.0), the denominator should have included all orders completed during the period. Because Qwest expected to implement the permanent measures, PO-6A and PO-6B, in the near future, it did not want to spend the effort required to revise the programming for the interim PO-6 measure. Qwest therefore proposed a revision to the PID to bring its processes into compliance.

During an interview with Qwest personnel, Liberty learned that Qwest began the process of calculating the interim PO-6 results by extracting data from PANS. The extracted files contained service order data that was drawn from the "Reseller" application. A particular service order could appear more than once in the files being used; therefore, Qwest performed a step to prevent inclusion of a service order more than once when calculating performance. It did this through the use of a field that it called "TEL NO." For each entry encountered in the "TEL NO" field, the program only used one record that had that particular entry. However, it was possible that two different service orders with identical entries in the "TEL NO" field could be completed in the same month. In these cases, the interim PO-6 calculation program allowed for the inclusion of only one of these service orders, even though both might have been valid. This was the finding of Exception 1033. Qwest responded that it was working to resolve this problem.

However, the permanent PO-6A and PO-6B measures, which employ quite different processes, were then implemented, and this rendered the problem irrelevant.

c. Observations

During an interview with Qwest personnel, Liberty learned that Qwest was including in the denominator of PO-6A and PO-6B all orders, and only those orders, that received a completion notification during the reporting period. The ROC 271 Working PID in effect at the time (Version 2.2) stated that the denominator of PO-6A and PO-6B should consist of those orders that were posted as complete during the period. Thus, Observation 1020 found that the set of orders being reported on was different from that required by the then-prevailing PID. Liberty also noted in the observation that statements in that PID document implied (but did not explicitly state) that work completion notifications are issued separately for each service order, although they actually are issued at the LSR level. Qwest proposed, and the ROC TAG accepted, changes to the PID that brought Qwest's processes into compliance with it.

d. Conclusions

PO-6 accurately reports the timeliness with which Qwest issues electronic work completion notifications at an LSR-level. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.

H. PO-7 – Billing Completion Notification Timeliness

1. Introduction and Background

PO-7 reports on the timeliness with which Qwest transmits electronic billing completion notifications to CLECs. It measures the percentage of service orders for which such notification is made available within five business days. PO-7 includes all orders posted in CRIS and for which a billing completion notice was made available in the reporting period.

PO-7A reports on notices made available via IMA-GUI, where a notice is considered to have been "made available" when Qwest stores it in the IMA Status Updates Database. PO-7B reports on notices made available via EDI, where a notice is considered to have been "made available" when Qwest completes processing for the completion notice in IMA immediately prior to transmission of the EDI notification. The PID notes that when Qwest develops the ability to capture the actual transmission date and time from EDI, that time will be used in calculating the interval, and the PID language will be revised accordingly. The standard for both PO-7A and PO-7B is parity with PO-7C, which measures Qwest's retail performance.

The formula for both PO-7A and PO-7B is:

(Number of electronic billing completion notices in the reporting period made available within five business days of posting complete in the SOP)/(Total number of electronic billing completion notices made available during the reporting period)

The formula for PO-7C is:

(Total number of retail service orders posted in the CRIS billing system in the reporting period that were posted within 5 business days)/(Total number of retail service orders posted in the CRIS billing system in the reporting period)

The exclusions applying to all PO-7 sub measures are:

- Services that are not billed through CRIS
- Records with invalid completion dates.

Additional exclusions applying only to PO-7A and PO-7B are:

- LSRs submitted manually
- ASRs submitted via EXACT.

2. Overall Summary

As discussed below, there has been one observation issued regarding this measure. Qwest has satisfactorily responded to it. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-7 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results. Liberty's fact-finding resulted in the observation discussed below.

Liberty selected numerous different types of service orders for the month of July 2001 and checked how the program that calculates PO-7 results had handled them. All of the service orders had been treated properly.

Liberty also recalculated the performance measure results for PO-7 for the state of Idaho for the month of July 2001. Liberty obtained the same results as those reported by Qwest for PO-7 for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-7 to meet the audit-release requirements as of September 25, 2001.

b. Exceptions

There were no exceptions regarding this measure.

c. Observations

Observation 1021 resulted when Liberty was told during an interview that billing completion notifications are provided to CLECs at the LSR level, not at the service order level. For example, if a CLEC submits an LSR that results in the creation of two service orders, Liberty was told that the CLEC would not receive a billing completion notification until both of those service orders have been posted complete in the Qwest SOP.

Given this situation, the wording in the then-governing ROC 271 Working PID (Version 2.2) appeared to be somewhat misleading, in that it implied (but did not state explicitly) that billing completion notifications were provided at the service order level. The description section of that version of the PID stated:

- *Intervals used in this measurement are from the time an order is completed in the SOP to the time billing completion for the order is notified to the CLEC.*
- *The start time is when the completion of the order is posted in the Qwest SOP. The end time is when, confirming that the order has been posted in the CRIS billing system, the electronic billing completion notice is transmitted to the CLEC via the same ordering interface (IMA-GUI or IMA-EDI) as used to submit the LSR.*

Liberty believed that these descriptions were likely to leave the impression that separate billing completion notices were transmitted for each service order. Qwest resolved the problem by proposing clarifying changes to the PID language. Subsequently, Liberty learned that electronic billing completion notifications actually are provided at the service order level, not the LSR level, rendering this observation, and the proposed PID changes, irrelevant.

d. Conclusions

PO-7 accurately reports the timeliness with which Qwest issues electronic billing completion notifications at a service order level.

5. Recommendations

Liberty has no recommendations regarding this measure.

I. PO-8 and PO-9 – Jeopardy Notice Interval and Timely Jeopardy Notices

1. Introduction and Background

PO-8 measures an average of how far in advance of the original due date Qwest provides jeopardy notifications to CLECs. Results are reported in four product categories: PO-8A is non-designed services, PO-8B is unbundled loops and number portability, PO-8C is LIS trunks, and PO-8D is UNE-P (POTS). The standard for PO-8A, B, and D is parity with Qwest retail, and the standard for PO-8C is parity with Feature Group D (FGD) services.

The unit of measure as defined in the PID is average business days. The formula for this measure is:

[(date of the original due date of orders completed in the reporting period that received jeopardy notification – date of the first jeopardy notification) / total orders completed in the reporting period that received jeopardy notification]

The only exclusion applying to all PO-8 sub-measures is jeopardies done after the original due date is past. Additional exclusions applying to all but PO-8C are:

- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

PO-9 measures the percent of missed due date orders for which Qwest has sent jeopardy notifications in advance of the original due date. Results are to be reported in four product categories: PO-9A is non-designed services, PO-9B is unbundled loops and number portability, PO-9C is LIS trunks, and PO-9D is UNE-P (POTS). The standard for PO-9A, B, and D is parity with Qwest retail, and the standard for PO-9C is parity with FGD services.

The formula for this measure is:

(total missed due date orders completed in the reporting period that received jeopardy notification in advance of original due date) / (total number of missed due date orders completed in the reporting period) x 100

The only exclusion applying to all PO-9 sub-measures is orders missed for customer reasons. Additional exclusions applying to all but PO-9C are:

- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

The data source used to calculate the results for both PO-8 and PO-9 is the Jeopardy data set. This data set consists of all service orders in the RSOR data set for the period that either received a jeopardy notice, had missed due dates, or both.

2. Overall Summary

There have been one observation and six exceptions issued regarding PO-8. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

Also as discussed below, there have been no observations and five exceptions issued regarding PO-9. Qwest has satisfactorily responded to all of them. The performance measure is ready for release.

3. Analysis

Liberty conducted several interviews and issued numerous data requests to learn about the performance measure development process. PO-8C and PO-9C currently are manual processes, and several of Liberty's interviews involved walkthroughs and assessments of those processes. Liberty also reviewed, and recommended changes to, Qwest's documented procedures for calculating these manual results. Qwest revised its manual procedures appropriately.

PO-8A, B, and D and PO-9A, B, and D are automated processes, and Liberty developed spreadsheets to analyze and recalculate the results reported by those processes. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the observations and exceptions discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty recalculated the performance measure results for PO-8C and PO-9C for the months of December 2000 and January 2001. Liberty also recalculated the performance measure results for PO-8A, B and D and PO-9A, B and D for New Mexico for the months of January 2001 and February 2001. Using Qwest's definition of average business days, Liberty obtained the same results as those reported by Qwest for PO-8 and PO-9 for those months.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measures PO-8 and PO-9 to meet the audit-release requirements as of April 7, 2001.

b. Exceptions

PO-8

Exception 1002 found that only orders for which the due date was missed were being included in the CLEC performance measure results for PO-8C. Qwest revised its procedures to include all orders completed in the reporting period that received jeopardy notices, regardless of whether the due date was missed.

Exceptions 1022 and 1025 noted that Qwest was only including in its calculations orders that were completed in the reporting period, and that Qwest was excluding from the measure all orders that received jeopardy notices *on* the due date. Qwest requested, and the ROC TAG approved, a PID change so that PO-8 is now defined to only include orders completed in the reporting period. Qwest modified its processes so that it now includes service orders that received jeopardy notices on the due date. Such service orders contribute one (1) to the denominator and zero (0) to the numerator.

Exception 1037 found that Qwest was including jeopardy notices issued on the due date of the order in both the denominator of PO-8C and in its numerator (contributing a value of one to the numerator). Such orders should only have been included in the denominator. At the same time, Liberty noted that Qwest was improperly calculating all of the intervals for the numerator of PO-8C. As an example, if the jeopardy notice for a particular record was issued on 11/13/00 and the due date was 11/14/00, then this record should have contributed one (1) to the numerator. Qwest's process contributed two (2) to the numerator, *i.e.*, Qwest's calculation of each individual interval was too large by one (1). Qwest revised its processes to correct these problems.

Exception 1040 noted that the *numerator* of the FGD comparative for PO-8C state results was being calculated by dividing the sum of the intervals by the number of records involved. The numerator should have been just the sum of the intervals. Qwest revised its procedures to correct this mistake.

Exception 1041 found that the intervals being calculated for the numerator of the formula for PO-8A, B, and D did not exclude weekends and holidays. Thus, the interval was being calculated on the basis of calendar days rather than business days as required by the PID. Qwest revised its process to calculate intervals using its B-day program (which is also used to calculate intervals measured in business days for other measures). The B-day program is Qwest's interpretation of how to measure the interval, in business days, between two events (referred to in this discussion as a beginning event and an ending event). If the beginning event (or, respectively, the ending event) occurs on a weekend or holiday, then the day of the beginning event (or, respectively, the day of the ending event) is included in the interval calculation, whether that day is a business day. Days that occur between the beginning event and the ending event are included in the interval only if they are business days. For example, if a service order's due date was Wednesday, and a jeopardy notice was sent out on the immediately previous Saturday, the PO-8 business day interval calculated by Qwest's B-day program would be 3 days, just as if the jeopardy notice had been sent out one day earlier, on Friday. Qwest employs the same logic in calculating business day intervals for PO-8C, which is done manually.

PO-9

Exceptions 1022 and 1026 found that Qwest was only including in its calculations of PO-9C orders that were completed in the reporting period. Qwest requested, and the ROC TAG approved, a PID change so that PO-9 is now defined to only include orders completed in the reporting period.

During an interview with Qwest personnel, Liberty learned that Qwest was only including an order in the denominator of the formula for PO-9C if the customer received a jeopardy notification regarding the order. However, the ROC 271 Working PID Version 2.2 stated that the denominator should include all missed due date orders completed in the reporting period, regardless of whether they have received a jeopardy notice. Accordingly, Liberty issued Exception 1038 to document this problem. Qwest's response to this exception was:

Qwest apologizes for any misunderstanding during the 1/24/01 interview. Liberty's understanding of the denominator used for PO-9C, Timely Jeopardy Notices on LIS Trunks is inaccurate. The denominator is the total number of missed due date orders completed in the reporting period in the Lotus Notes Escalation database. The source data includes orders with and without a jeopardy notice.

Exception 1040 noted that the PO-9C denominator for CLEC December results was calculated improperly because of a manual mistake. Qwest fixed the mistake in future performance reports.

As discussed above, the source data for the PO-9A, B, and D calculations is the Jeopardy data set. This data set consists of all service orders in the monthly RSOR data file that had a missed due date *or* received a jeopardy notice. Exception 1042 found that Qwest's calculation process did not exclude from the denominator of the measure those service orders that received jeopardy notices but that did not have missed due dates. Thus, whenever such service orders were otherwise eligible, they were being included in the denominator of PO-9A, B, and D although that was not consistent with the PID. Qwest revised its program code to correct this mistake.

c. Observations

Observation 1011 found that service orders were not being included in the calculation of PO-8C (*i.e.*, they were not included in either the denominator or the numerator of the formula) if the date of the jeopardy notification was the same as the due date of the order. Qwest changed its process to include such service orders properly.

d. Conclusions

PO-8 accurately reports average jeopardy notice interval results (accepting the interpretation of *business day intervals* used by Qwest). Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

PO-9 accurately measures the percent of missed due date orders for which Qwest has sent jeopardy notifications in advance of the original due date. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Currently, PO-8C and PO-9C involve manual steps, and are therefore subject to human error. During the course of the audit, Liberty noted several mistakes in results calculations due to this human error. Liberty understands that Qwest is mechanizing the processes used to develop these sub-measure results, and this should reduce the possibility of human error. Liberty recommends that the automated processes be audited once they are implemented.

J. PO-10 – LSR Accountability

1. Introduction and Background

Measure PO-10 is designed to help evaluate the degree to which Qwest can account for LSRs received electronically. It measures the number of LSRs received via IMA-GUI and IMA-EDI interfaces that Qwest has accounted for in various status categories as a percentage of all LSRs received in the reporting period. The specific status categories are listed in the PID. The measure is reported monthly on a region-wide basis and with no product-level reporting. PO-10 is a diagnostic measure that Qwest has indicated it may request be withdrawn after a showing that Qwest adequately accounts for LSRs.

As LSR status information is stored in the Customer Records Management (*CRM*) system, the Key Business Indicator (*KBI*) database is also updated. Each month, personnel at the Interconnect Provisioning Center interrogate the KBI database and create a report of LSRs and their current status. This report does not include LSRs with two of the specific status codes, namely "error" and "project." The KBI is queried separately to provide totals for these two categories as supplementary data.

The Interconnect Provisioning Center sends the monthly report and the supplementary data to Qwest's Wholesale Regulatory Reporting (*WRR*) group for inclusion in the monthly performance results. The KBI reports includes data on the total number of records in the database and the number with each of the various status codes. WRR calculates the result by dividing the number of records in all status categories by the number of records in the KBI database.

2. Overall Summary

PO-10 is being measured correctly.

One Exception Report (E1028) was submitted on this measure. The problem identified in the exception has been corrected.

3. Analysis

The number of records in the database and in each status category is provided electronically by the database system. There are no physical items of data to track through the data capture process. Data tracking was therefore not applicable to this measure.

Liberty has confirmed that WRR is reporting the correct result for the measure P0-10 by examining the KBI report and supplementary data for July and August, and recalculating the performance result.

The reported result of 100.01 percent for July 2000 and 100.02 percent for August 2000 have been confirmed using the following data from the KBI reports and supplementary data:

	July 2000	August 2000
Total with 'Req Recd' status	28	4
Total with 'Pending' status	83	143
Total with 'Suppl' status	81	173
Total with 'Reject' status	4,546	6,580
Total with 'Cancel' status	3,067	3,052
Total with 'Issued' status	49,826	63,486
Total with 'Error' status	174	189
Total with 'Project' status	57	58
Total in Database (denominator)	57,858	73,667
Total in All Status Categories (numerator)	57,862	73,685
Percentage Accounted For	100.01%	100.02%

Exception 1028 reported that Qwest was not applying the PID formula correctly. Qwest corrected this matter.

As part of the audit of PO-10, Liberty interviewed a CRM subject matter expert and representatives from WRR to confirm that the measurement was being performed correctly. Qwest described the LSR auto-logging process and provided copies of the KBI report that is sent to WRR. WRR identified the values used in the KBI report to calculate the results and described the processing steps that it completes. To verify the calculation process, Liberty validated that the Qwest performance result corresponded to the values in the KBI report and supplementary data by following the WRR prescribed process.

4. Findings and Conclusions

a. Actual PID Release Date

Measure PO-10 can be considered as ready for release on February 21, 2001.

b. Exceptions

One exception was raised against PO-10 (E1028). This report highlighted a calculation error, which has been corrected. Qwest prepared a tool to be used in the training of the method of

calculation so as to prevent the error. Liberty reviewed Qwest's document.

c. Observations

There were no observations written against PO-10.

d. Conclusions

PO-10 accurately measures the degree to which Qwest accounts for LSRs received electronically.

5. Recommendations

Liberty has no recommendations associated with PO-10.

K. PO-15 – Number of Due Date Changes per Order

1. Introduction and Background

PO-15 is designed to measure the average number of due date changes made per service order for Qwest reasons. The measure includes all inward service orders (Change, New, and Transfer order types) that have been assigned a due date in the reporting period. Change orders are included if they have "I" or "T" action codes indicating inward activity. PO-15 is a diagnostic measure.

The formula for PO-15 is:

$$(Count\ of\ Qwest\ due\ date\ changes\ on\ all\ orders)/(Total\ orders\ in\ reporting\ period)$$

PO-15 has the following exclusions:

- Customer requested due date changes
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

PO-15 is reported at a statewide level, and there is no product reporting for it.

A note in the PID states that limitations in Qwest's measurement capabilities allow some change orders to be included in the measure even though they do not represent additional lines. The note states that Qwest is working to exclude these types of orders.

2. Overall Summary

As discussed below, there have been two observations issued regarding this measure. Qwest has satisfactorily responded to them. The performance measure is ready for release.

3. Analysis

Liberty conducted numerous interviews and issued many data requests to learn about the performance measure development process. PO-15 results are prepared using an automated process, and Liberty developed spreadsheets to analyze and recalculate the results. In addition, Liberty reviewed the SAS code used by WRR to calculate the automated results.

Liberty's fact-finding resulted in the two observations discussed below. Additional interviews and data requests were issued to ensure that Qwest had resolved them properly, as discussed in the following section.

Liberty selected numerous different types of service orders for the month of June 2001 and checked how the program that calculates PO-15 results had handled them. As part of this activity, Liberty included some service orders that would generate the problems identified in the two PO-15 observations. Liberty found that all of the service orders were treated properly.

Liberty also recalculated the performance measure results for PO-15 for the month of July 2001 for the state of Montana. Liberty obtained the same results as those reported by Qwest for PO-15 for that month.

4. Findings and Conclusions

a. Performance Measure Release Date

Liberty considered measure PO-15 to meet the audit-release requirements as of September 17, 2001.

b. Exceptions

There were no exceptions associated with this measure.

c. Observations

During interviews with Qwest personnel, Liberty learned that the Qwest systems do not allow completion of an order if the subsequent due date is prior to the completion date. In such cases, the systems "force" a match by creating a subsequent due date that is the same as the completion date. Recognizing this, Qwest's initial process for measuring PO-15 results excluded a change from the calculation if the subsequent due date and the completion date were the same. However, there are several reasons why such a situation could occur. One is due to the "forced match" made by the Qwest systems, and in this case it is appropriate to exclude the apparent due date change, because there really wasn't one. Another reason occurs when Qwest does change the due date on an order (and the change was required for Qwest reasons), and Qwest then completes the order on that subsequent due date. In this case, and assuming no exclusions apply, the change should be counted in PO-15. Because Qwest cannot distinguish between these two situations,

this legitimate change would be excluded as well, and that is the finding of Observation 1024.

Qwest resolved the situation by changing its measurement process to include all (non-excluded) due date changes where the subsequent due date equals the completion date. As a result, it is also including some due date changes that did not really occur. Liberty verified that the process change was made properly by reviewing the revised SAS code, tracking through the process service orders that created the situation described above, and recalculating Qwest's results.

The PO-15 calculation process includes a step to determine the number of due date changes that should be included in the numerator of the measure for each service order. For each record that is a supplement to the service order, the original PO-15 measurement process compared the original due date on the service order (referred to as the SODD) to the subsequent date in the supplement record (referred to as the SFSD). If the SODD and the SFSD were the same, then that supplement was not considered to have caused a due date change.

Because of this step in the process, some legitimate due date changes were not being counted or included in the numerator of PO-15, and that is the finding of Observation 1025. An example is the best way to explain how this problem occurred. If a service order is created with an original due date (SODD) of 6/5/01, it could be supplemented with a new due date (the first SFSD) of 6/8/01 because, say, Qwest facilities are not available. If Qwest facilities then become available earlier than expected, Qwest could again supplement the service order and change the due date back to 6/5/01 (the second SFSD). The first supplement (the first SFSD) would have been counted as a due date change (assuming all other requirements are satisfied) because it differed from the SODD. However, the second supplement (the second SFSD) would not be counted as a due date change because the second SFSD would equal the SODD. Thus, in this example, the original PO-15 calculation process would only have counted one due date change when it should actually have counted two changes.

This is not a hypothetical problem. During an interview with Qwest personnel, Liberty asked Qwest to look for an actual service order with supplements like those in the above example. Qwest found one and verified that the program being used at the time had calculated the number of due date changes incorrectly, i.e., it had failed to include the due date change where the SFSD reverted back to equal the SODD.

Qwest resolved the problem by changing its measurement process to compare the first SFSD to the SODD (as had already been the case), but to compare each subsequent SFSD to the immediately previous SFSD. Liberty verified that the change was made properly by reviewing the revised SAS code, tracking through the process service orders that created the situation described above, and recalculating Qwest's results.

d. Conclusions

PO-15 accurately reports the number of due date changes per service order made for Qwest reasons. Qwest has modified or augmented its procedures and documentation to address the problems discussed above.

5. Recommendations

Liberty has no recommendations regarding this measure.